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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/656,325 | 09/06/2000 | Steven D. Nelson | 14073US01 | 9079 |
| 23446 | 7590 | 08/27/2004 | EXAMINER | |
| MCANDREWS HELD & MALLOY, LTD 500 WEST MADISON STREET SUITE 3400 CHICAGO, IL 60661 | | | CHAMBERS, TROY | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3641 | |

DATE MAILED: 08/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------|--|---------------------|----|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 09/656,325 | | NELSON ET AL. | |
| | Examiner | | Art Unit | |
| | Troy Chambers | | 3641 | NW |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-13,31-34 and 62-67 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,4-13,31-34 and 62-67 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 September 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. This non-final Office Action replaces the one mailed 08/10/04.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the components of the initiator, bleed resistor must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the components of each pyrotechnic device as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 64 and 65 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 64 makes reference to “non-detonating initiators”. An initiator is defined as the combination of a pyrotechnic assembly and an electronic assembly within a pyrotechnic device. Applicant has not disclosed how or in what manner said initiator could be “non-detonating”.

7. Claim 64 and 65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 64 makes reference to “non-detonating initiators”. An initiator is defined as the combination of a pyrotechnic assembly and an electronic assembly within a pyrotechnic device. It is not clear to the examiner how such an assembly can be non-detonating.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 4, 5, 7, 8, 10, 11, ¹²13, 32, 33, 34, 62, 63, 64, 66 and 67 are rejected under 35 U.S.C. 102(b) and (e) as being anticipated by U.S. Patent No. 6166452 issued to Adams et al. ("Adams") and U.S. 5825098 issued to Darby. Adams discloses a plurality of igniters 10 connected to a networked electronic ordnance system via a bus controller (ECU). Darby discloses the details of the communication details of the ECU and the plurality of igniters. Both Darby and Adams qualify as prior art under a single rejection under 35 U.S.C. 102 because Adams incorporated Darby into its specification by reference. Darby discloses an electronic control unit 300 (bus controller) and a plurality of safety device controllers 200 used to operate igniters as disclosed by Adams. Controllers 200 comprise capacitors 240 that receive increased voltages from the converters 260. The devices are capable of detonating only when the proper voltage level is sensed (25 volts) and a unique signal is received. In previous responses, applicant has argued that claimed subject matter relating to the ability of a single command to address "any combination" of devices is patentable over the prior art. However, such language is functional in nature and describes the claimed device's method of operation. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44

USPQ2d 1429, 1431-32 (Fed. Cir. 1997). The prior art device of Adams/Darby merely has to have the capability to perform the recited function. Because applicant's bus controller (described as being a microprocessor, pg. 6, line 14) is the same as Darby's bus controller (also a bus controller, col. 12, ll. 1-7), it is assumed that Darby's controller possesses the inherent capability of addressing the devices as claimed by the applicant.

10. With respect to claim 4, the applicant recites subject matter regarding the method of operation of the claimed ordnance system. Such a recitation does not limit the claims nor is it considered as a patentable limitation. In any event, the bus controller of Darby is the same as the bus controller claimed by the applicant and, therefore, is inherently capable of sending and receiving multiplexed digital signals. In any event, applicant has disclosed such capability as being well known (pg. 20, lines 20-22).

11. With respect to claims 5 and 8, Darby discloses energy reserve capacitors 240. Adams discloses capacitors 56, 62.

12. With respect to claim 7, refer to Figs. 2, 3 and 5 of Adams.

13. With respect to claim 10, Darby discloses bus interface 220.

14. With respect to claims 11 and 12, refer to Adams, col. 5, ll. 1-13 (serial and parallel communications).

15. With respect to claim 31 and 32, the subject matter claimed therein relates to the method of operation of the applicant's ordnance system. Hence, the limitations are not afforded patentable weight sufficient to overcome the cited prior art to Adams/Darby. In any event, the applicant's bus controller is equivalent to the bus controller of Adams (a microprocessor), so both are inherently capable of performing the same functions.

16. With respect to claims 33 and 34, Adams/Darby discloses an electronic ordnance device as described above. Adams/Darby's bus controller 300 anticipates the applicant's "means for transmitting" and the "means for altering". The subject matter relating the logic device relates to its manner of operation and, as discussed above, does not distinguish over the prior art. In any event, applicant has admitted that such as logic device is well known in the art (pg, 11. line 9).

17. With respect to claim 62 and 63, Adams/Darby discloses an electronic ordnance system as described above. The "assigning" function relates to the method of operation of the bus controller. The applicant's bus controller and that of Adams/Darby are the same (a microprocessor). Hence, each is inherently capable of performing said functions.

18. With respect to claim 64, Adams/Darby disclose an electronic ordnance device as described above. In view of the rejections under 35 U.S.C. 112 (1) and (2) the Examiner can best reject this claim by asserting that the initiators of Darby/Adams are not detonating if the device is not activated.

19. With respect to claims 66 and 67, Adams/Darby disclose an networked electronics ordnance system as discussed above. The inherent capabilities of both the bus controller 300 and the logic device of Adams/Darby have been discussed above as well.

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.


21. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams/Darby in view of Jullian and in further view of U.S. Patent No. 5206455 issued to Williams. Adams/Darby and Jullian disclose a combined system as described above with the exception of the subject matter of claims 6 and 9. Williams discloses such subject matter including bleed resistors (col. 22, ll. 53-60). At the time of the invention, one of ordinary skill in the art would have found it obvious to provide the combined device of Adams/Darby and Jullian with the bleed resistor of Williams. The suggestion/motivation for doing so would have been to provide an extra safety feature to bleed off current not intended to detonate the ignitors.

22. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Adams in view of U.S. Patent No. 6403887 issued to Kebabjian. Adams discloses a networked ordnance system as described above. However, Adams does not disclose the use of at least one shielded twisted pair cable. Kebabjian discloses a shielded twisted pair cable 10. At the time of the invention, one of ordinary skill in the art would have found it obvious to provide the network of Adams with the cable of Kebabjian. The suggestion/motivation for doing so would have been to prevent spurious noise and provide for high-speed communication.

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Troy Chambers whose telephone number is (703) 308-5870. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Carone, can be reached at (703) 306-4198.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-4177. The fax phone number for the organization where this application or proceeding is assigned is (703) 306-7687.


JACK KEITH
PRIMARY EXAMINER